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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/028,518	12/21/2001	Ralph A. Chappa	9896.149.0	4505

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EXAMINER

VO. HAI

ART UNIT	PAPER NUMBER
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1771

DATE MAILED: 03/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/028,518

Applicant(s)

CHAPPA ET AL.

Examiner

Hai Vo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-55 is/are pending in the application.
4a) Of the above claim(s) 1-21, 23-28, 31-35, 37-41, 45 and 48-53 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 22, 29, 30, 36, 42-44, 46, 47, 54 and 55 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

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1. All of the art rejections are withdrawn in view of the present amendment. None of the cited references discloses or suggests a grafting agent having one or more substituents comprising positively charged groups. However, upon further consideration, new ground of rejection is made in view of Swan et al (US 6,077,698).
2. The obviousness-type double patenting rejections over the US Patent no. 6,669,994 in view of Swan et al (US 5,414,075) are withdrawn in view of the present amendment. As asserted above, none of the cited references discloses or suggests a grafting agent having one or more substituents comprising positively charged groups. However, upon further consideration, new ground of rejection is made in view of US Patent no. 6,669,994 and Swan et al (US 6,077,698).

Election/Restrictions

3. Newly submitted claims 45, and 48-53 and currently amended claims 21 and 26 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: the porous surface support species are unpatentable over the prior art (see rejections below).

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 45, and 48-53 withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Objections

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4. Claims 22, 44, 46 and 47 are objected to because of the following informalities: they depend from non-elected claims 21 and 45. Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 54 and 55 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Swan et al (US 5,414,075).

Swan teaches a surface modification of polymethylmethacrylate (PMMA) coupon by sequential application of tetrakis (4-benzoylbenzyl ether) of Pentaerythritol (tetra-BBE-PET) and polyvinylpyrrolidone (PVP) (example 3). The coated coupon is more wettable and lubricious to the touch than the one coated with PVP alone (example 3). The support surface is a polyvinylidene difluoride membrane (example 7). The coating is covalently attached to the support surface by the residues of one or more latent reactive groups provided by the grafting reagent (column 1, lines 50-60).

Swan discloses the photoreactive grafting reagent applied to the support surface.

The coated support is then exposed to UV light in order to promote covalent bond formation at the support surface. Swan '075 teaches polyacrylamide prepared from polymerization of acrylamide monomers (column 13, lines 1-5). Swan '075 does not teach the processing steps as recite in the claims. However, it is a product-by-process limitation not as yet shown to produce a patentably distinct article. It is the examiner's position that the article of Swan '075 is identical to or only slightly different than the claimed article prepared by the method of the claim, because both articles are structurally the same wherein a porous support surface and a coating is covalently attached to the surface by the residues of one or photoinitiator groups provided by the grafting reagent. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or an obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). The burden has been shifted to the applicant to show unobvious differences between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289,291 (Fed. Cir. 1983). It is noted that if the applicant intends to rely on Examples in the specification or in a submitted Declaration to show non-obviousness, the applicant should clearly state how the Examples of the present invention are commensurate in scope with the claims and how the Comparative Examples are

commensurate in scope with Swan '075. It's the examiner's position that Swan '075 anticipates or strongly suggests the claimed subject matter.

Applicants argue that the '075 patent does not disclose graft polymerization as required by the claims. The target molecules are simply immobilized on the support surface by the grafting reagent. On the other hand, the claims require the grafting of monomers to the surface under condition suitable to cause the polymerization of monomers to the surface upon activation of the photoinitiator. The process of making the surface bearing a coating in accordance with the '075 patent is, in no doubt, different from the process disclosed by the present invention. However, the products resulting from the two processes are structurally the same. Both products comprise a porous support surface and a coating covalently attached to the surface by the residues of one or photoinitiator groups provided by the grafting reagent.

8. Claims 22, 29, 30, 36, 42-44, 46, 47, 54 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Swan et al (US 6,077,698) in view of Swan et al (US 5,414,075). Swan '698 teaches a surface bearing a coating comprising a support surface and a coating is covalently attached to the surface by the residues of one or photoinitiator groups provided by the grafting reagent. Swan'698 discloses the nonpolymeric grafting agent comprising at least four photoinitiator groups, the grafting agent having one or more substituents with positively charged groups. Swan '698 does not disclose the support surface being porous, Swan '075 teaches a surface bearing a coating comprising a porous support surface and a coating

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covalently attached to the surface by the residues of one or photoinitiator groups provided by the grafting reagent. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a porous support surface to which the coating agent is attached since the porous support surface and non-porous support surface have been shown in the art to recognized equivalent support surfaces for the attachment of the grafting reagent.

Swan '098 does not specifically disclose the polymerizable monomers from which a target molecule is formed. Swan '075 teaches polyacrylamide prepared from polymerization of acrylamide monomers (column 13, lines 1-5). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use acrylamide monomers to form polyacrylamide by photoderivatization as shown by Swan '075 because such is known in the art and Swan '075 provides necessary details to practice the invention of Swan '698.

Swan '098 does not specifically disclose the grafting agent made from tetra-BBE-PET. Swan teaches a surface modification of polymethylmethacrylate (PMMA) coupon by sequential application of tetra-BBE-PET and polyvinylpyrrolidone (PVP) (example 3). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use tetra-BBE-PET as a grafting agent since tetra-BBE-PET and tetraphoto tetraquat have been shown in the art to recognized equivalent mediators for the covalent attachment between the support surface and the coating.

The combination of the teachings of the two cited inventions does not specifically disclose the processing steps as recited in the claims. However, it is a product-by-process limitation not as yet shown to produce a patentably distinct article. It is the examiner's position that the article of Swan'698 as modified by Swan '075 is identical to or only slightly different than the claimed article prepared by the method of the claim, because both articles are structurally the same wherein a porous support surface and a coating is covalently attached to the surface by the residues of one or photoinitiator groups provided by the grafting agent. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or an obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). The burden has been shifted to the applicant to show unobvious differences between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289,291 (Fed. Cir. 1983). It is noted that if the applicant intends to rely on Examples in the specification or in a submitted Declaration to show non-obviousness, the applicant should clearly state how the Examples of the present invention are commensurate in scope with the claims and how the Comparative Examples are commensurate in scope with Swan'698 /Swan '075.

Applicants might argue that the '698 patent as modified by the '075 patent does not disclose graft polymerization as required by the claims. The target

molecules are simply immobilized on the support surface by the grafting reagent.

On the other hand, the claims require the grafting of monomers to the surface under condition suitable to cause the polymerization of monomers to the surface upon activation of the photoinitiator. The process of making the surface bearing a coating in accordance with the '075 patent or '698 patent is, in no doubt, different from the process disclosed by the present invention. However, the products resulting from the two processes are structurally the same. Both products comprise a porous support surface and a coating covalently attached to the surface by the residues of one or photoinitiator groups provided by the grafting reagent.

9. Claims 22, 29, 30, 36, 42-44, 46, and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 01/21326 in view of Swan et al (US 6,077,698) and Swan et al (US 5,414,075). US 6,669,994 to Swan et al (Swan '994) is relied on as an equivalent form of WO 01/21326. Swan '994 teaches a surface bearing a coating comprising a support surface and a coating is covalently attached to the surface by the residues of one or photoinitiator groups provided by the grafting reagent. Swan'994 discloses the nonpolymeric grafting agent comprising at least four photoinitiator groups, the grafting agent having one or more substituents with negatively charged groups (claim 28). Swan '994 discloses the polymer layer formed by the polymerization of the monomers (column 14, lines 27-35). Swan '994 does not disclose the support surface being porous. Swan '075 teaches a surface bearing a coating comprising a porous support surface and a coating covalently attached to the surface by the residues of one or photoinitiator groups provided by

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the grafting reagent. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a porous support surface to which the coating agent is attached since the porous support surface have been shown in the art to recognized equivalent support surfaces for the attachment of the grafting reagent.

Swan '994 does not disclose the grafting agent comprising one or more substituents with positively charged groups. Swan '698 discloses a surface bearing a coating comprising a grafting agent comprising one or more substituents with positively charged groups (column 2, line 55 et seq.). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute a grafting agent comprising one or more substituents with positively charged groups for the a grafting agent comprising one or more substituents with negatively charged groups since these two grafting agents have been shown in the art to recognized equivalent mediators for the covalent attachment between the support surface and the coating.

10. Claims 54 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 01/21326 in view of Swan et al (US 5,414,075). US 6,669,994 to Swan et al (Swan '994) is relied on as an equivalent form of WO 01/21326. Swan '994 teaches a surface bearing a coating comprising a support surface and a coating is covalently attached to the surface by the residues of one or photoinitiator groups provided by the grafting reagent. Swan'994 discloses the nonpolymeric grafting agent comprising at least four photoinitiator groups, the grafting agent having one or more

substituents with negatively charged groups (claim 28). Swan '994 discloses the polymer layer formed by the polymerization of the monomers (column 14, lines 27-35). Swan '994 does not disclose the support surface being porous polyvinylidene difluoride membrane. Swan '075 teaches a surface bearing a coating comprising a porous support surface and a coating covalently attached to the surface by the residues of one or photoinitiator groups provided by the grafting reagent. Swan '075 teaches the support surface being porous polyvinylidene difluoride membrane (example 7). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a porous support surface to which the coating agent is attached since the porous support surface and non-porous support surface have been shown in the art to recognized equivalent support surfaces for the attachment of the grafting reagent.

Double Patenting

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

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12. Claims 22, 29, 30, 36, 42-44, 46, and 47 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 28, 29 and 33 of U.S. Patent No. 6,669,994 in view of Swan et al (US 6,077,698) and Swan et al (US 5,414,075). The claims of the '994 patent disclose a surface bearing a coating comprising a support surface and a coating is covalently attached to the surface by the residues of one or photoinitiator groups provided by the grafting reagent. The '994 patent discloses the nonpolymeric grafting agent comprising at least four photoinitiator groups, the grafting agent having one or more substituents with negatively charged groups (claim 28). The '994 patent does not disclose the support surface being porous. Swan '994 does not disclose the support surface being porous polyvinylidene difluoride membrane. Swan '075 teaches a surface bearing a coating comprising a porous support surface and a coating covalently attached to the surface by the residues of one or photoinitiator groups provided by the grafting reagent. Swan '075 teaches the support surface being porous polyvinylidene difluoride membrane (example 7). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a porous support surface to which the coating agent is attached since the porous support surface and non-porous support surface have been shown in the art to recognized equivalent support surfaces for the attachment of the grafting reagent.

The '994 patent does not disclose the grafting agent comprising one or more substituents with positively charged groups. Swan '698 discloses a surface bearing a coating comprising a grafting agent comprising one or more substituents with

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positively charged groups (column 2, line 55 et seq.). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute a grafting agent comprising one or more substituents with positively charged groups for the a grafting agent comprising one or more substituents with negatively charged groups since these two grafting agents have been shown in the art to recognized equivalent mediators for the covalent attachment between the support surface and the coating.

13. Claims 54 and 55 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 28, 29 and 33 of U.S. Patent No. 6,669,994 in view of Swan et al (US 5,414,075). The claims of the '994 patent disclose a surface bearing a coating comprising a support surface and a coating is covalently attached to the surface by the residues of one or photoinitiator groups provided by the grafting reagent. The '994 patent discloses the nonpolymeric grafting agent comprising at least four photoinitiator groups, the grafting agent having one or more substituents with negatively charged groups (claim 28). The '994 patent does not disclose the support surface being porous. Swan '994 does not disclose the support surface being porous polyvinylidene difluoride membrane. Swan '075 teaches a surface bearing a coating comprising a porous support surface and a coating covalently attached to the surface by the residues of one or photoinitiator groups provided by the grafting reagent. Swan '075 teaches the support surface being porous polyvinylidene difluoride membrane (example 7). Therefore, it would have been obvious to one having ordinary skill in

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the art at the time the invention was made to use a porous support surface to which the coating agent is attached since the porous support surface and non-porous support surface have been shown in the art to recognized equivalent support surfaces for the attachment of the grafting reagent.

The '994 patent does not specifically disclose the polymer coating layer is formed by polymerization of polymerizable monomers. Swan '075 teaches a surface bearing a coating comprising a porous support surface and a polymer coating covalently attached to the surface by the residues of one or photoinitiator groups provided by the grafting reagent. Swan '075 teaches the polymer coating formed from polymerization of acrylamide monomers (examples 3-6). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ acrylamide monomers in preparation of the polymer coating layer because such is known in the art and Swan '075 provides necessary detail to practice the invention of the '994 patent.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory

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action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai Vo whose telephone number is (571) 272-1485. The examiner can normally be reached on M,T,Th, F, 7:00-4:30 and on alternating Wednesdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HV

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